

CLAIMS

What is claimed is:

- 5 1. A synthetic nucleic acid sequence comprising 10-30 consecutive nucleotides
of at least one of the following:
 - (a) the N gene region of the SARS-associated coronavirus genome; and
 - (b) the 3' non-coding region of the SARS-associated coronavirus genome.
- 10 2. A composition comprising the synthetic nucleic acid sequence of claim 1.
3. Use of the synthetic nucleic acid sequence of claim 1 in a kit for determining
the presence or absence of SARS-associated coronavirus in a biological sample.
- 15 4. A synthetic nucleic acid sequence comprising 10-30 consecutive nucleotides
of a nucleic acid sequence that is complementary to at least one of the following:
 - (a) the N gene region of the SARS-associated coronavirus genome; and
 - (b) the 3' non-coding region of the SARS-associated coronavirus genome.
- 20 5. A composition comprising the synthetic nucleic acid sequence of claim 4.
6. Use of the synthetic nucleic acid sequence of claim 4 in a kit for determining
the presence or absence of SARS-associated coronavirus in a biological sample.
- 25 7. A synthetic nucleic acid sequence comprising 10-30 consecutive nucleotides
of the nucleic acid sequence of SEQ ID NO:1 or of a nucleic acid sequence that is
complementary to the nucleic acid sequence of SEQ ID NO:1.
- 30 8. A primer set for determining the presence or absence of SARS-associated
coronavirus in a biological sample, wherein the primer set comprises at least one synthetic
nucleic acid sequence selected from the group consisting of:

(a) a synthetic nucleic acid sequence comprising 10-30 consecutive nucleotides of at least one of the following:

- (i) the N gene region of the SARS-associated coronavirus genome; and
- (ii) the 3' non-coding region of the SARS-associated coronavirus genome;

and

(b) a synthetic nucleic acid sequence comprising 10-30 consecutive nucleotides of a nucleic acid sequence that is complementary to at least one of the following:

- (i) the N gene region of the SARS-associated coronavirus genome; and
- (ii) the 3' non-coding region of the SARS-associated coronavirus genome.

9. The primer set of claim 8, wherein the at least one synthetic nucleic acid sequence has a nucleotide sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, and SEQ ID NO:16, and a fragment, variant, and derivative thereof.

10. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:2, or a fragment, variant, or derivative thereof.

11. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:3, or a fragment, variant, or derivative thereof.

12. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:4, or a fragment, variant, or derivative thereof.

13. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:5, or a fragment, variant, or derivative thereof.

14. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:6, or a fragment, variant, or derivative thereof.

5 15. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:7, or a fragment, variant, or derivative thereof.

10 16. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:8, or a fragment, variant, or derivative thereof.

15 17. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:9, or a fragment, variant, or derivative thereof.

20 18. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:10, or a fragment, variant, or derivative thereof.

19. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:11, or a fragment, variant, or derivative thereof.

25 20. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:12, or a fragment, variant, or derivative thereof.

30 21. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:13, or a fragment, variant, or derivative thereof.

22. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:14, or a fragment, variant, or derivative thereof.

5 23. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:15, or a fragment, variant, or derivative thereof.

10 24. The primer set of claim 9, wherein the at least one synthetic nucleic acid sequence has the nucleotide sequence of SEQ ID NO:16, or a fragment, variant, or derivative thereof.

25. A composition comprising the primer set of claim 8.

15 26. Use of the primer set of claim 8 in a kit for determining the presence or absence of SARS-associated coronavirus in a biological sample.

20 27. A kit for determining the presence or absence of SARS-associated coronavirus in a biological sample, comprising at least one synthetic nucleic acid sequence and instructions for use, wherein the at least one synthetic nucleic acid sequence is selected from the group consisting of:

(a) a nucleic acid sequence comprising 10-30 consecutive nucleotides of at least one of the following:

(i) the N gene region of the SARS-associated coronavirus genome; and

25 (ii) the 3' non-coding region of the SARS-associated coronavirus genome;

and

(b) a nucleic acid sequence comprising 10-30 consecutive nucleotides of a nucleic acid sequence that is complementary to at least one of the following:

(i) the N gene region of the SARS-associated coronavirus genome; and

30 (ii) the 3' non-coding region of the SARS-associated coronavirus genome.

28. The kit of claim 27, wherein the at least one synthetic nucleic acid sequence has a nucleotide sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, and SEQ ID NO:16, and a fragment, variant, and derivative thereof.

29. A kit for determining the presence or absence of SARS-associated coronavirus in a biological sample, comprising:

(a) a primer set comprising at least two synthetic nucleic acid sequences, wherein at least one of the at least two synthetic nucleic acid sequences is selected from the group consisting of:

(i) a nucleic acid sequence comprising 10-30 consecutive nucleotides of at least one of the following:

(A) the N gene region of the SARS-associated coronavirus genome;

and

(B) the 3' non-coding region of the SARS-associated coronavirus genome; and

(ii) a nucleic acid sequence comprising 10-30 consecutive nucleotides of a nucleic acid sequence that is complementary to at least one of the following:

(A) the N gene region of the SARS-associated coronavirus genome;

and

(B) the 3' non-coding region of the SARS-associated coronavirus genome; and

(b) instructions for use.

30. The kit of claim 29, wherein the at least one nucleic acid sequence has a nucleotide sequence selected from the group consisting of SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, and SEQ ID NO:16, and a fragment, variant, and derivative thereof.

31. The kit of claim 29, further comprising:

- (c) suitable PCR reagents; and
- (d) optionally, a positive and/or negative control for determining the presence or absence of SARS-associated coronavirus.

32. The kit of claim 31, wherein the PCR reagents include a thermostable DNA polymerase and dNTP solutions.

33. A method for determining the presence or absence of SARS-associated coronavirus in a biological sample, comprising the steps of:

- (a) contacting the biological sample with at least one synthetic nucleic acid sequence, under conditions suitable for amplification; and
- (b) determining the presence or absence of SARS-associated coronavirus in the biological sample;

wherein the at least one synthetic nucleic acid sequence is selected from the group consisting of:

- (i) a nucleic acid sequence comprising 10-30 consecutive nucleotides of at least one of the following:

- (A) the N gene region of the SARS-associated coronavirus genome;
 - and

- (B) the 3' non-coding region of the SARS-associated coronavirus genome; and

- (ii) a nucleic acid sequence comprising 10-30 consecutive nucleotides of a nucleic acid sequence that is complementary to at least one of the following:

- (A) the N gene region of the SARS-associated coronavirus genome;
 - and

- (B) the 3' non-coding region of the SARS-associated coronavirus genome.

34. The method of claim 33, wherein the biological sample is obtained from a subject suspected of having SARS.